Abstracts

Slotline Impedance

J.J. Lee. "Slotline Impedance." 1991 Transactions on Microwave Theory and Techniques 39.4 (Apr. 1991 [T-MTT]): 666-672.

A theoretical model is presented to compute the characteristic impedance and wavelength in a slotline printed on or embedded in a dielectric substrate. In this treatment the effects of fringing field caused by the finite width of the conducting strips are taken into account. The main task was to calculate the capacitance per unit length of the slotline. First, the Green's function for the potential of a pair of filament sources in a dielectric substrate is solved, which was used as a building block to construct the overall solution of the boundary value problem. Then the surface charge density on the conducting strips is found by using a moment method and imposing the source condition (equal potential) on the conductors. From the surface charge density, the characteristic impedance of the slotline is computed for various input parameters. The formulation is applicable to a single-sided, sandwiched, or double-sided slotline printed on or embedded in a dielectric substrate.

❑ Return to main document.